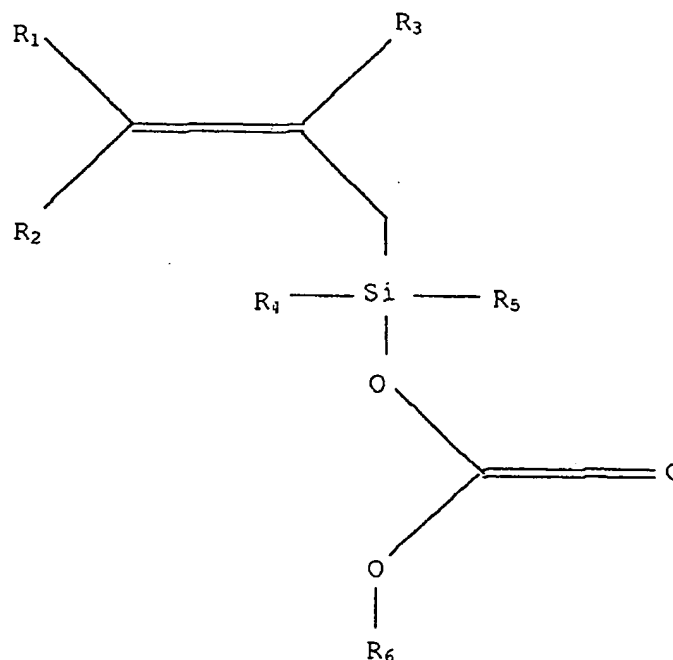


Patent claims

1. A polymerizable composition for the production of a resist, comprising at least one unsaturated, polymerizable monomer having at least one silicon atom and at least one carbonyl group.
2. The polymerizable composition as claimed in claim 1, characterized in that a monomer is characterized by the following general formula (I):



in which the meanings are as follows:

- R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>: H or alkyl radicals, in particular methyl radicals,
- R<sub>4</sub>, R<sub>5</sub>: alkyl radicals, in particular methyl radicals, further silicon units, e.g. siloxanes
- R<sub>6</sub>: alkyl radical, in particular tert-butyl radical,

WO 2004/0142

- 8a -

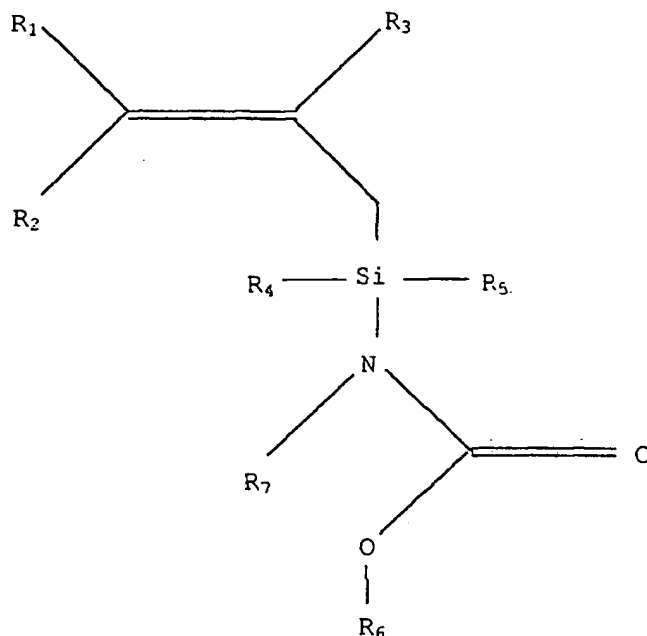
FD-2003/002502

it being possible for  $R_1, R_2, R_3, R_4, R_5, R_6$  to be identical or

REPLACED BY  
ART 34 AMEN

different.

3. The polymerizable composition as claimed in claim 1 or 2, characterized in that a monomer is characterized by the following general formula (II)



10 in which the meanings are as follows:

- R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>: H or alkyl radicals, in particular methyl radicals,
- 15 R<sub>4</sub>, R<sub>5</sub> : alkyl radicals, in particular methyl radicals, silicon units, e.g. siloxanes
- R<sub>6</sub> : alkyl radical, in particular tert-butyl radical,
- 20 R<sub>7</sub> : H or alkyl radical, in particular methyl radical,

it being possible for R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub>, R<sub>4</sub>, R<sub>5</sub>, R<sub>6</sub>, R<sub>7</sub> to be identical or different.

REPLACED BY  
ART 34 AMDT

WO 2004/00042

- 9a -

P 02003/002502

4. The polymerizable composition as claimed in at least one of the preceding claims, characterized in that

at least one alkyl radical has a chain length of  $C_1$  to  $C_8$ .

- 5     5.     The polymerizable composition as claimed in at least one of the preceding claims, characterized in that monomers as claimed in claim 1 and/or other monomers, in particular maleic anhydride, styrene, p-hydroxystyrene or methacrylic acid, are present for the polymerization.
- 10
6.     A polymer prepared by polymerization of one of the compositions as claimed in any of claims 1 to 5.
- 15     7.     A resist characterized by a content of from 2 to 30% of polymer as claimed in claim 6, a content of from 70 to 98% of solvent and a content of from 0.1 to 10% of photo acid generator.
- 20     8.     The resist as claimed in claim 7, characterized by a content of methoxypropyl acetate, ethyl acetate, ethyl lactate, cyclohexanone, gamma-butyrolactone and/or methyl ethyl ketone as a solvent.
- 25     9.     The resist as claimed in claim 7 or 8, characterized by a content of Crivello salt, diphenylsulfonium sulfonate, diphenyliodonium sulfate, phthalimidosulfonate and/or ortho-nitrobenzylsulfonate as a photo acid generator.
- 30
10.     The resist as claimed in at least one of claims 7 to 9 for use in an electron beam recording process.
- 35     11.     A lithography process for the production of a structure on a substrate, in particular of a structure for a lithography mask for the production of semiconductor components,

characterized in that a resist as claimed in any  
of claims 7 to 9 is used.

REPLACED BY  
ART 34 AMDT

RECEIVED BY  
AM 34/10/03

12. The lithography process as claimed in claim 10,  
characterized in that
- 5 a) a mask blank is coated with a resist as claimed  
in claim 9,
- b) the resist is recorded on by means of a laser  
and/or electron beam recorder,
- 10 c) the structure produced by the recording in the  
resist is developed,
- d) the mask blank is dry-etched.
- 15 13. The lithography process as claimed in claim 10 or  
11, characterized in that a heating step is  
carried out after recording on the resist.
- 20 14. The lithography process as claimed in at least one  
of claims 10 to 12, characterized in that the  
development is effected with an aqueous alkaline  
developer, in particular a 2.38% strength aqueous  
tetramethylammonium hydroxide solution or a TMAH  
25 developer.